PA. NT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 03 September 2001 (03.09.01)	
International application No. PCT/US00/17471	**Applicant's or agent's file reference** RCA89857
International filing date (day/month/year) 26 June 2000 (26.06.00)	**Priority date** (day/month/year) 05 October 1999 (05.10.99)
Applicant RAMASWAMY, Kumar et al	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

02 May 2001 (02.05.01)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Antonia MULLER

Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	**FOR FURTHER ACTION**	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
RCA89857		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/US 00/ 17471	26/06/2000	05/10/1999
Applicant		
THOMSON LICENSING S.A.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   [ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

   b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

   [ ] contained in the international application in written form.

   [ ] filed together with the international application in computer readable form.

   [ ] furnished subsequently to this Authority in written form.

   [ ] furnished subsequently to this Authority in computer readble form.

   [ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   [ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable** (See Box I).

3. [ ] **Unity of invention is lacking** (see Box II).

4. With regard to the **title,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 3

   [X] as suggested by the applicant.

   [ ] because the applicant failed to suggest a figure.

   [ ] because this figure better characterizes the invention.

   [ ] None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 00/17471

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L12/64 H04Q11/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 905 959 A (COMVERSE NETWORK SYST INC) 31 March 1999 (1999-03-31)	1-3,5,7, 9-12,14, 16,18,19
Y	column 12, line 7 - line 22 column 13, line 12 - line 37 claims 1-6	4,13,20
Y	US 5 883 893 A (RUMER MARK ET AL) 16 March 1999 (1999-03-16) column 3, line 8 - line 15; claims 1,6,10-12 column 3, line 45 - line 51	4,13,20
A	WO 97 38511 A (AT & T CORP) 16 October 1997 (1997-10-16) page 6, line 22 -page 7, line 9 page 14, line 5 - line 30	1-20

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
30 October 2000	07/11/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Gregori, S

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 00/17471

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	IWATA H ET AL: "DESIGN AND IMPLEMENTATION OF AN ATM-SLIC FOR VOICE AND TELEPHONY OVER ATM(VTOA)" IEEE VEHICULAR TECHNOLOGY CONFERENCE,US,NEW YORK, IEEE, vol. CONF. 47, 18 November 1996 (1996-11-18), pages 1375-1379, XP000741651 ISBN: 0-7803-3660-7 page 1378; table 1	5,14

1

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US 00/17471

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0905959 A	31-03-1999	AU 7860498 A	11-02-1999
		JP 11191791 A	13-07-1999
US 5883893 A	16-03-1999	NONE	
WO 9738511 A	16-10-1997	CA 2250789 A	16-10-1997
		EP 0894386 A	03-02-1999

PATENT COOPERATION TREATY

PCT

REC'D 24 JAN 2002
WIPO PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
RCA 89857		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US00/17471	26/06/2000	05/10/1999
International Patent Classification (IPC) or national classification and IPC H04L12/64		
Applicant THOMSON LICENSING S.A. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
02/05/2001	21.01.2002
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Hamer, J Telephone No. +49 89 2399 8827

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US00/17471

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:
Description, pages:

1-3,5-25	as originally filed			
4,4a	as received on	10/12/2001	with letter of	10/12/2001

Claims, No.:

1-12	as received on	10/12/2001	with letter of	10/12/2001

Drawings, sheets:

1/19-19/19	as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   - ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
   - ☐ the language of publication of the international application (under Rule 48.3(b)).
   - ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   - ☐ contained in the international application in written form.
   - ☐ filed together with the international application in computer readable form.
   - ☐ furnished subsequently to this Authority in written form.
   - ☐ furnished subsequently to this Authority in computer readable form.
   - ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
   - ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-12
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-12
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-12
	No:	Claims	

2. Citations and explanations
   see separate sheet

V- Reasoned Statement

1. The following documents are cited:

   D1: EP-A-0 905 959 (COMVERSE NETWORK SYST INC) 31 March 1999 (1999-03-31)
   D2: US-A-5 883 893 (RUMER MARK ET AL) 16 March 1999 (1999-03-16)
   D3: WO 97 38511 A (AT & T CORP) 16 October 1997 (1997-10-16)
   D4: IWATA H ET AL: 'DESIGN AND IMPLEMENTATION OF AN ATM-SLIC FOR VOICE AND TELEPHONY OVER ATM(VTOA)' IEEE VEHICULAR TECHNOLOGY CONFERENCE,US,NEW YORK, IEEE, vol. CONF. 47, 18 November 1996 (1996-11-18), pages 1375-1379, XP000741651 ISBN: 0-7803-3660-7

2. Claim 1

The subject-matter of claim 1 of the present invention is concerned with a system for providing a data and voice service over a physical connection. Where a subscriber has a digital subscriber line, normal telephony or POTS co-exists with data transfer and normally uses a POTS splitter at the subscriber and central office ends. In prior art systems, if packetised telephony is to be used, a voice gateway to the PSTN needs to be present which means that it is not possible to take advantage of the ATM network for switching of individual calls. In document D1, a voice connection is made through the PSTN normally and then routed to a centralised platform via a virtual circuit. In claim 1 of the present application, a different approach is taken. In the claim, an ATM switch is positioned between the customer premises equipment and the PSTN. If the customer premises equipment detects an off hook signal form an attached telephone, it formats a connection request data packet. The ATM switch contains a service control point which receives this request and dynamically sets up a virtual circuit path from the ATM switch to the PSTN. The advantage of this architecture is that individual calls can be dynamically ATM switched and assigned, thus making much more efficient use of system resources. D2 is only concerned with a voice transport layer protocol and D3 and D4 with pure packet switched telephony with no involvement by the PSTN.

As the features of claim 1 are found nowhere in the available prior art documents, the subject-matter of claim 1 involves an inventive step and claim 1 meets the requirements of Article 33(2) and (3) PCT.

3. Independent claim 7

The subject-matter of independent claim 7 is essentially the same as that of claim 1, but expressed in terms of method features. Thus for the same reasons outlined above, claim 7 also meets the requirements of Articles 33(2) and (3) PCT.

4. The subject-matter of dependent claims 2 to 6 and 8 to 12 includes features which further restrict the scope of claims 1 and 7 respectively. As a result, these claims also meet the requirements of Articles 33(2) and (3) PCT.

5. The following deficiencies are found in the application:

a) The independent claims do not meet the requirements of Rule 6.3(b) PCT in that they are not divided into the two-part form.

b) The description should have been modified to bring it into agreement with the modified independent claims, Rule 5.1(a)(iii), PCT.

ATM virtual circuit at the CPE. Further, these architecture do not allow you to take direct advantage of the ATM network (e.g., the ATM switch) in terms of the dynamic capabilities of connection setup and teardown, resulting in inefficient use of system resources.

In another system as described in EP 0-905-959-A2, a telephone voice system is described establishing a link over a packet switched network. This system, however, does not appear to contemplate the environment of being able to provide both data and voice services over the same physical connection. In addition, the intelligence of this system is concentrated entirely in centralized "platforms". In addition, these platforms are positioned after the voice has traveled over the normal PSTN.

Therefore, present inventors have arrived at a better solution of using ATM AAL1 for carrying voice traffic, instead. AAL1 provides a simple method of carrying voice through an ATM network as well as the ability to dynamically setup and teardown connections at the ATM layer within the ATM network itself (see, e.g., *ITU-TI.363.1: B-ISDN ATM Adaptation Layer Specification: Type 1 AAL*).

Hence, one aspect of the present invention is a communication architecture whose voice path is based on a combination of a PVC and a switched virtual circuit (SVC). The PVC is setup from the CPE to the trunk port on the DSLAM. The SVC is the dynamic connection that can exist in the ATM switch for the purposes of setting up and tearing down voice connections. Each voice path is carried in an independent ATM virtual circuit, rather than multiplexing multiples of them together. The voice traffic is carried using AAL1. The signaling information is also carried independently of the voice and is also routed towards a service control processor rather than directly to the switch.

In this architecture, the value of the virtual path/virtual channel directly identifies the information contained within the cell and the user it is intended for. By using an independent ATM virtual circuit per voice channel, it is possible to setup and teardown the connection in the ATM switch (using a switched virtual circuit).

A service control processor externally controls the switch through inband signaling. This architecture exploits the power of the ATM switch by using its capabilities to dynamically setup and teardown connections. In this architecture, there is no decision making at the ATM Adaptation layer in the ATM network, the data is sent to the correct destination based upon the VP/VC. This connection is established at the ATM Layer.

A system and method for providing a voice and/or data service is thus presented, comprising the following. A connection request is detected. The connection request is formatted into a data cell. The data cell is sent to a service control point. The service control point determines in real time whether a connection to public switch network is available. If the connection to a public switch network

1. A system for providing a data and voice service over a physical connection, comprising:

an end user telephone (38-1);

a computer (39);

a customer premises equipment (33-1) coupled to the computer for providing the data service and to the end user telephone for providing the voice service, the customer premises equipment detecting an off hook indication from the end user telephone and formatting a connection request data packet in response to the off hook indication;

an ATM switch (35) positioned between the customer premises equipment and the public switched telephone network (40); and

a service control point (37) coupled to an ATM switch for receiving the connection request data packet and for dynamically setting up a virtual circuit path from the ATM switch to the public switch network in response to the data packet.

2. The system of claim 1 wherein the service control point sends a second data packet back to the customer premises equipment containing connection information about the virtual circuit path setup between the ATM switch and the public switched network.

3. The system of claim 2 wherein the customer premises equipment sets up a virtual circuit to the ATM switch based on the connection information received from the service control point so that a virtual circuit is set up from the customer premises equipment to the public switch network.

4. The system of claim 1 wherein the service control point first determines whether a communication slot between the ATM switch and the public switch network is available before dynamically setting up the virtual circuit path.

5. The system of claim 1 wherein the connection request data packet is an ATM cell.

6. The system of claim 5 wherein the ATM cell is an ATM adaptation layer 1 cell.

7. A method for use in a customer premises equipment for providing a data and voice service over same physical connection, comprising the steps of:

coupling an end user telephone and a computer to the customer premises equipment;

detecting an off hook indication from the end user telephone; and

formatting a connection request data packet to a service control point through an ATM switch in response to the off hook indication; the ATM switch being positioned between the customer premises equipment and the public switched network; the service control point receiving the connection request data packet and dynamically setting up a virtual circuit path from the ATM switch to a public switch network in response to the data packet.

8. The method of claim 7 wherein the customer premises equipment receives a second data packet containing connection information about the virtual circuit path from the service control point.

9. The method of claim 8 wherein the customer premises equipment sets up a virtual circuit based on the connection information received from the service control point so that the virtual circuit is set up from the customer premises equipment to the public switch network.

10. The method of claim 7 wherein the service control point first determines whether a communication slot between the ATM switch and the public switch network is available before dynamically setting up the virtual circuit path.

11. The method of claim 7 wherein the connection request data packet is an ATM cell.

12. The method of claim 9 wherein the ATM cell is ATM adaptation layer 1.

PATENT COOPERATION TREATY

EXPRESS EV025962815US

PTO/PCT Rec'd 02 APR 2002

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

FYI

-10 pages-

TRIPOLI, Joseph S.
THOMSON MULTIMEDIA LICENSING INC.
P.O. Box 5312
2 Independence Way
Princeton, New Jersey 08540
ETATS-UNIS D'AMERIQUE

Confirmation
FAX-Bestätigung

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing *(day/month/year)*	21.01.2002
Applicant's or agent's file reference RCA 89857	**IMPORTANT NOTIFICATION**

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US00/17471	26/06/2000	05/10/1999

Applicant
THOMSON LICENSING S.A. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/	Authorized officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Barrio Baranano, A Tel.+49 89 2399-8621

Form PCT/IPEA/416 (July 1992)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
RCA 89857		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US00/17471	26/06/2000	05/10/1999
International Patent Classification (IPC) or national classification and IPC H04L12/64		
Applicant THOMSON LICENSING S.A. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
02/05/2001	21.01.2002
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Hamer, J Telephone No. +49 89 2399 8827

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US00/17471

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:
Description, pages:

1-3,5-25	as originally filed			
4,4a	as received on	10/12/2001	with letter of	10/12/2001

Claims, No.:

1-12	as received on	10/12/2001	with letter of	10/12/2001

Drawings, sheets:

1/19-19/19	as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   - ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
   - ☐ the language of publication of the international application (under Rule 48.3(b)).
   - ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   - ☐ contained in the international application in written form.
   - ☐ filed together with the international application in computer readable form.
   - ☐ furnished subsequently to this Authority in written form.
   - ☐ furnished subsequently to this Authority in computer readable form.
   - ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
   - ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-12
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-12
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-12
	No:	Claims	

2. Citations and explanations
   see separate sheet

V- Reasoned Statement

1. The following documents are cited:

   D1: EP-A-0 905 959 (COMVERSE NETWORK SYST INC) 31 March 1999 (1999-03-31)
   D2: US-A-5 883 893 (RUMER MARK ET AL) 16 March 1999 (1999-03-16)
   D3: WO 97 38511 A (AT & T CORP) 16 October 1997 (1997-10-16)
   D4: IWATA H ET AL: 'DESIGN AND IMPLEMENTATION OF AN ATM-SLIC FOR VOICE AND TELEPHONY OVER ATM(VTOA)' IEEE VEHICULAR TECHNOLOGY CONFERENCE,US,NEW YORK, IEEE, vol. CONF. 47, 18 November 1996 (1996-11-18), pages 1375-1379, XP000741651 ISBN: 0-7803-3660-7

2. Claim 1

   The subject-matter of claim 1 of the present invention is concerned with a system for providing a data and voice service over a physical connection. Where a subscriber has a digital subscriber line, normal telephony or POTS co-exists with data transfer and normally uses a POTS splitter at the subscriber and central office ends. In prior art systems, if packetised telephony is to be used, a voice gateway to the PSTN needs to be present which means that it is not possible to take advantage of the ATM network for switching of individual calls. In document D1, a voice connection is made through the PSTN normally and then routed to a centralised platform via a virtual circuit. In claim 1 of the present application, a different approach is taken. In the claim, an ATM switch is positioned between the customer premises equipment and the PSTN. If the customer premises equipment detects an off hook signal form an attached telephone, it formats a connection request data packet. The ATM switch contains a service control point which receives this request and dynamically sets up a virtual circuit path from the ATM switch to the PSTN. The advantage of this architecture is that individual calls can be dynamically ATM switched and assigned, thus making much more efficient use of system resources. D2 is only concerned with a voice transport layer protocol and D3 and D4 with pure packet switched telephony with no involvement by the PSTN.

As the features of claim 1 are found nowhere in the available prior art documents, the subject-matter of claim 1 involves an inventive step and claim 1 meets the requirements of Article 33(2) and (3) PCT.

3. Independent claim 7

The subject-matter of independent claim 7 is essentially the same as that of claim 1, but expressed in terms of method features. Thus for the same reasons outlined above, claim 7 also meets the requirements of Articles 33(2) and (3) PCT.

4. The subject-matter of dependent claims 2 to 6 and 8 to 12 includes features which further restrict the scope of claims 1 and 7 respectively. As a result, these claims also meet the requirements of Articles 33(2) and (3) PCT.

5. The following deficiencies are found in the application:

a) The independent claims do not meet the requirements of Rule 6.3(b) PCT in that they are not divided into the two-part form.

b) The description should have been modified to bring it into agreement with the modified independent claims, Rule 5.1(a)(iii), PCT.

ATM virtual circuit at the CPE. Further, these architecture do not allow you to take direct advantage of the ATM network (e.g., the ATM switch) in terms of the dynamic capabilities of connection setup and teardown, resulting in inefficient use of system resources.

Therefore, present inventors have arrived at a better solution of using ATM AAL1 for carrying voice traffic, instead. AAL1 provides a simple method of carrying voice through an ATM network as well as the ability to dynamically setup and teardown connections at the ATM layer within the ATM network itself (see, e.g., *ITU-TI.363.1: B-ISDN ATM Adaptation Layer Specification: Type 1 AAL*).

Hence, one aspect of the present invention is a communication architecture whose voice path is based on a combination of a PVC and a switched virtual circuit (SVC). The PVC is setup from the CPE to the trunk port on the DSLAM. The SVC is the dynamic connection that can exist in the ATM switch for the purposes of setting up and tearing down voice connections. Each voice path is carried in an independent ATM virtual circuit, rather than multiplexing multiples of them together. The voice traffic is carried using AAL1. The signaling information is also carried independently of the voice and is also routed towards a service control processor rather than directly to the switch.

In this architecture, the value of the virtual path/virtual channel directly identifies the information contained within the cell and the user it is intended for. By using an independent ATM virtual circuit per voice channel, it is possible to setup and teardown the connection in the ATM switch (using a switched virtual circuit).

A service control processor externally controls the switch through inband signaling. This architecture exploits the power of the ATM switch by using its capabilities to dynamically setup and teardown connections. In this architecture, there is no decision making at the ATM Adaptation layer in the ATM network, the data is sent to the correct destination based upon the VP/VC. This connection is established at the ATM Layer.

A system and method for providing a voice and/or data service is thus presented, comprising the following. A connection request is detected. The connection request is formatted into a data cell. The data cell is sent to a service control point. The service control point determines in real time whether a connection to public switch network is available. If the connection to a public switch network

Claims

1. A method for providing a voice connection through a data network, comprising the steps of:

requesting a connection;

formatting the connection request into a data cell;

sending the data cell to a service control point;

determining in real time whether a connection to public switch network is available; and

if the connection to a public switch network is available, setting up the requested connection as a virtual circuit connection to the public switch network.

2. The method of claim 1 further comprising the step of setting up the requested connection through a data packet network.

3. The method of claim 2 wherein the data packet network is an asynchronous transfer mode network.

4. The method of claim 2 wherein requesting step is made through a permanent virtual circuit already established to the data packet network.

5. The method of claim 1 wherein the requested connection is setup as ATM adaptation layer type 1.

6. The method of claim 1 wherein the data cell is in asynchronous transfer mode format.

7. The method of claim 1 wherein the virtual circuit connection is a switched virtual circuit connection.

8. The method of claim 1 wherein the service control point processes the connection request in real time in response to the data cell.

9. The method of claim 1, further comprising the step of tearing down the virtual circuit connection when the requested connection is terminated.

10. A system for providing a data and/or voice service, comprising:

a device for detecting a connection request from an end user terminal and formatting the connection request into a data packet;

a service control point for receiving the data packet and for determining whether a connection to a public switch network is available; and

if the connection to the public switch network is available, the service control point setting up the requested connection as a virtual circuit connection to the public switch network.

11. The system of claim 10 wherein the requested connection is setup through a data packet network.

12. The system of claim 11 wherein the data packet network is an asynchronous transfer mode network.

13. The system of claim 11 wherein the device sends the data packet through a permanent virtual circuit already established to the data packet network.

14. The system of claim 10 wherein the requested connection is made through an ATM adaptation layer type 1 connection.

15. The system of claim 10 wherein the data packet is in asynchronous transfer mode format.

16. The system of claim 10 wherein the virtual circuit connection is a switched virtual circuit connection.

17. The system of claim 10 wherein the service control point processes the connection request in real time in response to the data packet.

18. The system of claim 10, wherein the service control point tears down the virtual circuit connection when the requested connection is terminated.

19. The method of providing an end-to-end voice connection for an end device, comprising the step of:

setting up a permanent virtual circuit connection from the end device to a data network;

setting up a switched virtual circuit connection through the data network; and

connecting the switched virtual circuit to a circuit switched connection in a voice network.

20. The method of claim 19 wherein the permanent virtual circuit connection is variable rate.

IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.